

CLAIMS

1. A power line terminating circuit provided at terminations of a pair of indoor power lines where a high frequency signal in a communication frequency band is superimposed on an AC power source voltage, comprising:

a first capacitor provided between the pair of indoor power lines to suppress fluctuations of a capacitive load in an electric device connected to the terminations of the indoor power lines;

one or more inductors provided on the indoor power lines and configuring a series resonance circuit in cooperation with the first capacitor; and

one or more resistors respectively provided in parallel with each of the inductors and having a resistance value corresponding to a characteristic impedance of the indoor power lines,

wherein the series resonance circuit has a series resonance point in a frequency band which is higher than a frequency of the AC power source voltage and is lower than the communication frequency band.

2. A power line terminating circuit according to claim 1, wherein an impedance of the inductor at the lower limit frequency of the communication frequency band is equal to or larger than twice of the resistance value of the resistor.

3. A power line terminating circuit according to claim 1, wherein the inductor is provided on only one of the pair of indoor power lines.

4. A power line terminating circuit according to claim 3, further comprising a second capacitor provided in series with the resistor and configuring a parallel resonance circuit in cooperation with the inductor,

wherein the parallel resonance circuit has a parallel resonance point in a frequency band which is higher than the series resonance point and is lower than the communication frequency band.

5. A power line terminating circuit according to claim 1, wherein the inductors include first and second inductors respectively provided on each of the pair of indoor power lines,

the resistors include a first resistor provided in parallel with the first inductor and a second resistor provided in parallel with the second inductor,

the sum of the resistance values of the first and second resistors corresponds to a characteristic impedance of the indoor power lines, and

the first and second inductors configure the series resonance circuit in cooperation with the first capacitor.

6. A power line terminating circuit according to claim 5, wherein the first and second inductors have inductances equal to each other, and

the first and second resistors have resistance values equal to each

other.

7. A power line terminating circuit according to claim 5, further comprising:

a third capacitor provided in series with the first resistor and configuring a first parallel resonance circuit in cooperation with the first inductor; and

a fourth capacitor provided in series with the second resistor and configuring a second parallel resonance circuit in cooperation with the second inductor,

wherein each of the first and second parallel resonance circuits has a parallel resonance point in a frequency band which is higher than the series resonance point of the series resonance circuit configured by the first and second inductors and the first capacitor and is lower than the communication frequency band.

8. A power line relay device for relaying between terminations of a pair of indoor power lines where a high frequency signal in a communication frequency band is superimposed on an AC power source voltage and an electric device which is supplied with power from the indoor power lines, comprising:

a pair of connection plugs connectable to the terminations of the pair of indoor power lines;

a pair of electric device connection sockets to which a power source

plug of the electric device can be plugged in;

a first capacitor provided between the pair of electric-device-connection sockets to suppress fluctuations of a capacitive load in the electric device;

one or more inductors provided between the connection plug and the electric-device-connection socket and configuring a series resonance circuit in cooperation with the first capacitor; and

one or more resistors respectively provided in parallel with each of the inductors and having a resistance value corresponding to a characteristic impedance of the indoor power lines,

wherein the series resonance circuit has a series resonance point in a frequency band which is higher than a frequency of the AC power source voltage and is lower than the communication frequency band.

9. A power line relay device according to claim 8, wherein an impedance of the inductor at the lower limit frequency of the communication frequency band is equal to or larger than twice of the resistance value of the resistor.

10. A power line relay device according to claim 8, wherein the inductor is provided on either between one of the connection plugs and one of the electric-device-connection sockets or between the other connection plug and the other electric-device-connection socket.

11. A power line relay device according to claim 10, further comprising a second capacitor provided in series with the resistor and configuring a parallel resonance circuit in cooperation with the inductor,

wherein the parallel resonance circuit has a parallel resonance point in a frequency band which is higher than the series resonance point and is lower than the communication frequency band.

12. A power line relay device according to claim 8, wherein the inductor includes a first and second inductors, the first inductor provided between one of the connection plugs and one of the electric-device-connection sockets, and the second inductor provided between the other connection plug and the other electric-device-connection socket,

the resistor includes a first resistor provided in parallel with the first inductor and a second resistor provided in parallel with the second inductor,

the sum of the resistance values of the first and second resistors corresponds to a characteristic impedance of the indoor power lines, and

the first and second inductors configure the series resonance circuit in cooperation with the first capacitor.

13. A power line relay device according to claim 12, wherein the first and second inductors have inductances equal to each other, and

the first and second resistors have resistance values equal to each

other.

14. A power line relay device according to claim 12, further comprising:

a third capacitor provided in series with the first resistor and configuring a first parallel resonance circuit in cooperation with the first inductor; and

a fourth capacitor provided in series with the second resistor and configuring a second parallel resonance circuit in cooperation with the second inductor,

wherein each of the first and second parallel resonance circuits has a parallel resonance point in a frequency band which is higher than the series resonance point of the series resonance circuit configured by the first and second inductors and the first capacitor and is lower than the communication frequency band.

15. A power line relay device according to claim 8, further comprising at least a pair of communication device connection sockets which are directly connected to the pair of connection plugs and to which a power source plug of a communication device can be plugged in.

16. A power line relay device according to claim 8, further comprising at least a pair of additional electric-device-connection sockets which are provided in parallel with the pair of electric-device-connection sockets and

to which a power source plug of an electric device can be plugged in.

17. A method of terminating a pair of indoor power lines where a high frequency signal in a communication frequency band is superimposed on an AC power source voltage, comprising the steps of:

providing a first capacitor between the pair of indoor power lines, the first capacitor suppressing fluctuations of a capacitive load in an electric device connected to the terminations of the indoor power lines;

providing one or more inductors on the indoor power lines, the one or more inductors configuring a series resonance circuit in cooperation with the first capacitor; and

providing one or more resistors in parallel with each of the inductors, the one or more resistors having a resistance value corresponding to a characteristic impedance of the indoor power lines,

wherein the series resonance circuit has a series resonance point in a frequency band which is higher than a frequency of the AC power source voltage and is lower than the communication frequency band.